

COPY

FLETCHER, HEALD & HILDRETH, P.L.C.

ATTORNEYS AT LAW

11th FLOOR, 1300 NORTH 17th STREET

ARLINGTON, VIRGINIA 22209-3801

(703) 812-0400

TELECOPIER

(703) 812-0486

INTERNET

www.fhh-telcomlaw.com

FRANK U. FLETCHER

(1939-1985)

ROBERT L. HEALD

(1956-1983)

PAUL D.P. SPEARMAN

(1936-1982)

FRANK ROBERSON

(1938-1961)

RUSSELL ROWELL

(1948-1977)

EDWARD F. KENEHAN

(1960-1978)

CONSULTANT FOR INTERNATIONAL AND

INTERGOVERNMENTAL AFFAIRS

SHELDON J. KRYN

U. S. AMBASSADOR (ret.)

OF COUNSEL

EDWARD A. CAINE*

MITCHELL LAZARUS*

EDWARD S. O'NEILL*

JOHN JOSEPH SMITH

WRITER'S DIRECT

703-812-0440

lazarus@fhh-telcomlaw.com

RECEIVED

SEP 24 1999

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

ANN BAVENDER*
ANNE GOODWIN CRUMP
VINCENT J. CURTIS, JR.
RICHARD J. ESTEVEZ
PAUL J. FELDMAN
RICHARD HILDRETH
FRANK R. JAZZO
ANDREW S. KERSTING
EUGENE M. LAWSON, JR.
SUSAN A. MARSHALL*
HARRY C. MARTIN
GEORGE PETRUTSAS
RAYMOND J. QUIANZON
LEONARD R. RAISH
JAMES P. RILEY
ALISON J. SHAPIRO
KATHLEEN VICTORY
HOWARD M. WEISS

* NOT ADMITTED IN VIRGINIA

September 24, 1999

BY HAND DELIVERY

Magalie Salas, Esq.

Federal Communications Commission

445 12th Street, SW, Room TW-B204

Washington, DC 20554

**Re: Comments Requested in Connection with Court Remand
of August 1998 Advanced Services Order (DA 99-1853)
CC Docket Nos. 98-11, 98-26, 98-32, 98-78, 98-91, 98-147**

Dear Ms. Salas:

Enclosed please find the original and four copies of the Comments of CDS Networks, Inc., in the above-referenced matter for filing with the Commission.

Please date stamp and return the enclosed extra copy of the Comments.

If you need any further information, please call me at the number above.

Respectfully submitted,


Mitchell Lazarus

Counsel for CDS Networks, Inc.

ML:deb

Enclosures

cc: Service List
Mr. Cleve Tooker, CDS Networks, Inc.
Mr. Jaye Mathisen, Internet CDS, Inc.
Frank R. Jazzo, Esq.

RECEIVED

SEP 24 1999

Before the
Federal Communications Commission
Washington DC 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
) CC Docket Nos. 98-11, 98-26, 98-32,
Deployment of Wireline Services Offering) 98-78, 98-91, and 98-147
Advanced Telecommunications Capability)

**COMMENTS OF CDS NETWORKS, INC. IN RESPONSE TO
REQUEST FOR COMMENTS IN CONNECTION WITH
COURT REMAND OF AUGUST 1998 ADVANCED SERVICES ORDER**

CDS Networks, Inc. (CDS), a CLEC, responds to the Commission's request for comments in the above-referenced docket.¹ The Commission asks whether Section 251(c)(1) requires incumbent LECs to interconnect with CLECs for the provision of DSL-based advanced services (1) on the ground these services are "telephone exchange service," (2) on the ground they are "exchange access," (3) on some other basis, or (4) not at all.

For the reasons explained below, the RBOCs are required to interconnect for the provision of DSL-based service just as they are for conventional POTS services. Their contention that Section 251 does not apply to DSL-based services fails in three respects. First, the language of the 1996 Act's interconnection policy covers technologies, like DSL, that come into use after the 1996 Act was passed. Second, at least one RBOC — US West — intends to offer a DSL-based voice service as a substitute for conventional, multiple-line telephone exchange service and exchange access. This undercuts any argument that DSL must be regulated differently from conventional service. Third, as CDS has shown in another proceeding, a large

¹ Comments Requested in Connection With Court Remand of August 1998 Advanced Services Order, CC Docket Nos. 98-11, 98-26, 98-32, 98-78, 98-91, and 98-147, Public Notice DA 99-1853 (released Sept. 9, 1999) (Public Notice).

and growing fraction of successful Internet communications (DSL and otherwise) in fact never reach the Internet, but instead terminate at the user's Internet service provider as a local call. This traffic is indistinguishable from traditional telephone exchange service, and must be regulated as such in all respects, including interconnection.

The RBOCs argue in several forums — including paid radio ads in Washington, DC — that the best interests of the public and the economy depend on giving the RBOCs free rein to offer interLATA services without opening their local facilities to competition for advanced services. But the introduction of advanced services is not an occasion to create a new monopoly. The breakup of previous phone-company monopolies in long-distance service and customer premises equipment brought unimagined benefits to consumers and businesses alike. Similarly, fair competition from companies like CDS in the provision of advanced services will both bring prices down and raise the quality and variety of advanced services offerings in ways we cannot yet foretell.

A. The Introduction of DSL Does not Affect the Obligation to Interconnect for Telephone Exchange Service.

The Commission must not permit the RBOCs to misuse the appearance of a new communications technology as an excuse to evade their interconnection obligations. The Congress that drafted the 1996 Act could not be expected to anticipate every possible advance in telephony after the Act was passed. The appearance of DSL does nothing to undercut the policies and congressional intent that motivated the Act.

From its inception in the days of dial-driven stepping switches, the Commission has repeatedly faced the problem of regulating technologies that evolve faster than legislative text.

The Commission has a long and successful history of integrating new technologies into its policies and statutory constructions. The Commission should maintain that tradition and not permit the RBOCs to lever a technical change into the abandonment of sound policy.

In any event, the language of the Communications Act easily assimilates DSL-based services into the interconnection requirements. Congress evidently meant the combination of telephone exchange service and exchange access to cover the universe of communications both inside and outside the exchange area. Although Congress could not know which communications technologies might eventually provide these services, it did know that new ones were likely to appear, and wanted to make sure that the particular technologies used are irrelevant. Accordingly, Congress did not stop with defining "telephone exchange service" broadly as service within an exchange area,² but went on to add, "[or] comparable service provided through a system of switches, transmission equipment, or other facilities (or combination thereof) by which a subscriber can originate and terminate a telecommunications service."³ It hard to imagine how Congress could have stated more plainly that the technical nature of the facilities makes no difference. Perhaps if a DSL connection went all the way to the Internet backbone, an RBOC might attempt to assert that DSL does not "originate and terminate

² "The term 'telephone exchange service' means (A) service within a telephone exchange, or within a connected system of telephone exchanges within the same exchange area operated to furnish to subscribers intercommunicating service of the character ordinarily furnished by a single exchange, and which is covered by the exchange service charge" 47 U.S.C. § 153(47)(A).

³ 47 U.S.C. § 153(47)(B). Note that this clause of the definition, unlike clause (A), does not mention the exchange service charge.

a telecommunications service," on the ground that the backbone is not a telecommunications service.⁴ But in real life the DSL signal always terminates at the central office, if not before, and invariably links to an intermediate telecommunications service before reaching the backbone. DSL is therefore telephone exchange service (or exchange access, depending on the ultimate destination), and for that reason is subject to the Act's interconnection provisions.

B. US West Plans to Offer DSL-Based Voice Service.

US West has announced plans to carve up a DSL line into multiple voice channels for as little as \$10 each.⁵ According to the trade press, US West will concentrate the traffic from several DSL lines, siphon off any data signals, de-packetize the voice signals, and route them back into the public telephone network.⁶ The resulting traffic is either telephone exchange service or exchange access, depending on the nature of the call, notwithstanding its partial carriage via DSL.

The RBOCs cannot use DSL as a competitive substitute for conventional voice facilities, and at the same time be heard to say that DSL is immune from interconnection obligations. This stance is not only irrational on its face, but flies in the face of the 1996 Act's pro-competitive policies.

⁴ The Act defines "telecommunications service" as the offering of telecommunications for a fee directly to the public. 47 U.S.C. § 153(46).

⁵ Chuck Moozakis, *DSL to Deliver Voice, Data*, Internet Week (April 5, 1999). A downloaded copy of the article is attached.

⁶ *Id.*

C. A Large and Growing Fraction of DSL-Carrier Internet Traffic In Fact is Telephone Exchange Service.

Large numbers of popular Internet sites are "cached" at ISPs and other locations close to the end user. A large fraction of end user traffic to an ISP thus goes no farther than the ISP's cache. For the sake of economy, the cache is most often in the same exchange area as the end user. Although the end user thinks he or she is on the Internet, in fact such a communication is nothing more than conventional telephone exchange service as defined in the 1996 Act.⁷

The percentage of Internet communications that reach only a local cache is increasing rapidly, due to the conjunction of two trends. First, despite the much-touted "exponential growth" of the Internet, a small fraction of all available websites account for a large fraction of Internet activity. The ratio of websites actually accessed to the total number of on-line users is shrinking further as millions of less sophisticated users, new to the Internet, frequent the few sites listed in the major portal services.⁸ Second, because costs of storage are declining much faster than costs of bandwidth, ISPs find they can operate more efficiently by caching copies of

⁷ For details on the facts set out below, see Letter from Mitchell Lazarus to Magalie Salas, Secretary, FCC, in CC Docket Nos. 96-68 and 99-68 (July 13, 1999). The term "cache" can also refer to storage of Internet data on a company's local area network, usually to increase speed of access to sites that employees use often. Access to this kind of cache typically does not entail local exchange facilities, and is not part of this discussion.

⁸ One study, using data from December 1997, showed that 5 percent of websites in the sample studied received 75 percent of the visits. John Markoff, *Not a Great Equalizer After All?*, N.Y. Times, June 21, 1999, at C4. But this study probably underestimates the concentration. Because it focused on university and adult sites, the study may have missed the few dozen consumer sites that draw the most traffic. Moreover, the data used are now almost two years old — a lifetime on the Internet. The number of people on line may have doubled during that period, with newer users more likely to restrict their activity to the same small handful of sites.

popular websites locally.⁹ An ISP can store data for a month at about the same cost as transmitting it across the country once.¹⁰

Even if bandwidth costs were not a factor, extensive caching would still be necessary to avoid bottlenecks at the remote server or remote router interconnection points. Ultimately, local storage is needed because the number of Internet users is increasing much faster than the number of servers. In addition, new high-speed access technologies such as DSL increase typical download speeds by a factor of 20 or more, enabling users to click on correspondingly more sites in the time they now take to inspect one. This level of demand would paralyze the backbone without adequate caching to buffer the load.

Streaming audio and video, which consume significant bandwidth, are readily cached.¹¹ UseNet newsgroups and anonymous FTP (publicly available file transfer protocol) can also be fully cached. For fast-changing websites such as news, weather, and sports services, a process called "Evergreen" caching permits storing a site's unvarying graphic content — logos, borders, etc., which account for most of the bandwidth — while downloading only new content, consisting

⁹ The equipment and services needed to accomplish these functions are themselves becoming a major industry, amounting to a \$287 million market in 1999. David Strom, *The Caching Question*, Internet World, Sept. 15, 1999, at 72. The market is expected to reach \$2 billion by 2002, with hardware caching appliances making up 80% of that market. (The rest is software packages that run on standard operating system platforms.) Source: Collaborative Marketing 1998 Internet Caching Report. A different estimate predicts a \$5.1 billion market by 2003, with continuing annual growth at over 50%. Source: International Data Corp. 1999.

¹⁰ Paul DeVeaux, *Cache Me If You Can*, America's Network, July 1, 1999, at 34.

¹¹ Live audio-video content cannot be cached, of course, since it is meant to be viewed in real time. But live content can be "proxied," which replicates the information source to multiple destinations in real time.

largely of low-bandwidth text. The much-discussed explosion of e-commerce encourages caching of web pages and forms, with only user-specific information and typed-in text actually transiting the Internet. (Authenticated or secure websites may carry coding that prohibits caching their contents.) A product called "Footprint" lets Internet content providers, in addition to ISPs, choose material to be cached at the ISPs' facilities. Some providers favor Footprint because it keeps information on the site readily available even during extremely heavy demand.

The caching process is transparent to the user, who does not ordinarily know or care that he has reached the cache rather than a distant site (except that cache access is faster). If an ISP were to unplug from the Internet backbone today, 60-80% of web queries and 100% of UseNet queries would still be answered with current information. An additional 10% of Internet traffic representing anonymous FTP would also be unaffected. Only email and chat require a "live" Internet connection. But these are both primarily text-based and require very little bandwidth, and so represent only a tiny percentage of a typical ISP's data traffic.

In short, a large fraction of mouse-clicks connect the user only to a nearby cache, typically in the same exchange area. Those communications are telephone exchange service. Even under the RBOCs' most restrictive reading of the law, CLECs are entitled to interconnection to provide that service. As a practical matter, of course, it is not feasible to interconnect for some packets but not for others. Full-time interconnection is necessary to satisfy the RBOCs' obligations.

CONCLUSION

The authors of the 1996 Act understood that local competition is necessary to reduce the costs and increase the quality and variety of local telephone services. They also understood that

interconnection with incumbent facilities is necessary for fair competition. They expressed these views in a statute that mandates interconnection for local service, using carefully chosen words that make the incumbents' interconnection obligations independent of the particular technology used. In particular, the statutory language makes plain that deployment of DSL as a substitute for conventional modem-on-voice-line simply has no bearing on the RBOCs' interconnection obligations.

In addition, at least one of the RBOCs has underscored the homology between DSL and conventional voice service by announcing plans to break up the DSL channel into inexpensive voice lines. The RBOCs cannot use that device in an effort to compete with the CLECs, and simultaneously argue that DSL is so different from conventional voice service as to escape interconnection with the CLECs.

Finally, a large fraction of putatively Internet traffic in fact does nothing more than access a cache in the end user's exchange area, and thus is telephone exchange service in every respect. The facilities used for this service are fully subject to interconnection for this reason as well.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mitchell Lazarus", written in a cursive style.

Mitchell Lazarus
FLETCHER, HEALD & HILDRETH, P.L.C.
1300 North 17th Street, 11th Floor
Arlington, VA 22209
703-812-0440

September 24, 1999

Counsel for CDS Networks, Inc.

DSL to Deliver Voice, Data

by Chuck Moozakis
Internet Week
April 5, 1999

US West will offer by year's end a service that carves up to 16 voice channels out of a single digital subscriber line and still provides a high-speed channel for data, possibly for as low as \$10 per voice line.

That could present IT managers with the strong business case for DSL that has been lacking with some other convergent services, including ISDN and ATM.

Enterprise users are understandably intrigued by this development. "My 800 dial bill is running upwards of \$125,000 per month, and I'm doing everything I can to get the price down," said one engineering manager at a large Midwest insurance company. "I would love to have one pipe for [multiple] at-home people." Currently, the insurer relies on dial-up Internet access and toll-free numbers for voice in order to link remote users to headquarters.

Jonathan Rudes, senior managing director of Newmark Real Estate Inc., said such a service would be a major advantage in marketing his commercial properties to prospective tenants.

"If I can save space and provide advanced services without having to run additional equipment, that would be a major advantage for my office buildings," said Rudes, who already offers DSL to one of his buildings. "They need high-speed Internet access and multiple phone lines."

Pricing for U S West's "derived voice service" (DVS), which is currently under development, hasn't been finalized, but it is expected that the voice lines will run about \$10 each, said Larry Yokell, director of product development for MegaBit Services, part of U S West's Interprise networking unit. That's about 50 percent less than a regular voice line.

For now, DVS puts U S West ahead of the pack of other suppliers rolling out DSL services.

SBC Communications Inc. has a segmented voice/data service dubbed Integrated Pathways, but it's based on a T1 line, according to an SBC spokesman. BellSouth and Bell Atlantic said they do not have similar offerings. Regional and national ISPs, such as Rhythms NetConnections Inc., Covad Communications Co. and NorthPoint Communications Inc., said they are focused on data-only DSL services at this time.

IT managers should expect similar services from other vendors and service providers, said analyst Laurie Falconer, who follows DSL technology for TeleChoice Inc.

"The carrier needs to get the voice piece of the business because that's where the revenue is. If they can provide multiple services to the same company, that customer will be tied closer to the carrier and less likely to bolt," she said. "For the IT manager, it's much more efficient. If he or she can use only one provider for multiple services, it's easier to manage and provides an opportunity to save on voice lines." DVS will use rate-adaptive DSL, a technology that dynamically adjusts to dirty lines or other transmission hiccups, Yokell said. DVS will run on DSL access multiplexers (DSLAMs) and other hardware being developed by Cisco and CopperCom Inc. RADSL can deliver data downstream at 6.1 Mbps and upstream at 1.5 Mbps.

CopperCom's technology, called Copper Complete DSL, is a hardware and software combination that creates as many as 16 voice channels on a DSL pipe, said Jennifer Stagnaro, vice president of marketing at CopperCom. With RADSL, CopperCom could support 16 64-Kbps channels while still leaving room for 512 Kbps of data, assuming U S West decided to offer a full-throttled version of the technology. With compression, voice channels could be cut to 32 Kbps, leaving 1 Mbps for data.

The CopperCom technology is currently being tested and is expected to go into trials next quarter, Stagnaro said. Cisco declined to comment on the specific technology it's developing for U S West.

Copper Complete takes disparate voice and data streams and pools them through a small customer-premises device, which packetizes the data and voice traffic for transport over one DSL line.

The blended traffic is carried through the DSL pipe to Cisco DSLAMs located at a U S West switching center. There, the traffic from several DSLAMs is concentrated onto an ATM switch, where the data is siphoned off to the user's ISP. Voice traffic is sent to a CopperCom gateway, where the packetized voice is converted back to digital and funneled to the public telephone network.

Source: http://www.teledotcom.com/news0499/news040599_2.html

Certificate of Service

I, Deborah N. Lunt, a secretary for the law firm of Fletcher, Heald & Hildreth, P.L.C., hereby certify that a true copy of the foregoing "Comments of CDS Networks, Inc." was hand delivered this 24th day of September, 1999, to:

Chairman William E. Kennard
Federal Communications Commission
445 12th Street, S.W., Room 8-B201
Washington, D.C. 20554

Commissioner Harold Furchtgott-Roth
Federal Communications Commission
445 12th Street, S.W., Room 8-A302
Washington, D.C. 20554

Commissioner Michael Powell
Federal Communications Commission
445 12th Street, S.W., Room 8-A204
Washington, D.C. 20554

Commissioner Susan Ness
Federal Communications Commission
445 12th Street, S.W., 8-B115
Washington, D.C. 20554

Commissioner Gloria Tristani
Federal Communications Commission
445 12th Street, S.W., Room 8C302
Washington, D.C. 20554

Lawrence Strickling
Chief, Common Carrier Bureau
Federal Communications Commission
445 12th Street, S.W., Room 5-C450
Washington, D.C. 20554

Carol Matthey
Chief, Policy and Program Division
Common Carrier Bureau
Federal Communications Commission
445 12th Street, S.W., Room 5-B125
Washington, D.C. 20554

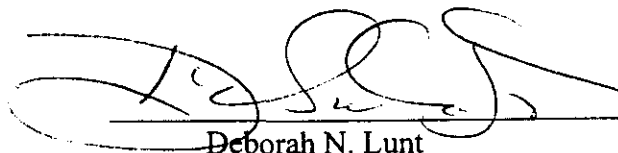
Staci Pies
Attorney Advisor
Policy and Program Division
Common Carrier Bureau
Federal Communications Commission
445 12th Street, S.W., Room 5-C360
Washington, D.C. 20554

Claudia Fox
Attorney Advisor
Policy and Program Division
Common Carrier Bureau
Federal Communications Commission
445 12th Street, S.W., Room 5-C235
Washington, D.C. 20554

Jake Jennings
Attorney Advisor
Policy and Program Division
Common Carrier Bureau
Federal Communications Commission
445 12th Street, S.W., Room 5-C260
Washington, D.C. 20554

Janice Myles
Paralegal Specialist
Policy and Rules Division
Common Carrier Bureau
Federal Communications Commission
445 12th Street, S.W., Room 5-C327
Washington, D.C. 20554

International Transcription Service
1231 20th Street, N.W.
Washington, D.C. 20037



Deborah N. Lunt